# EPA Approved Refrigerants

## Vehicle Maintenance and Repair Series

CFC-12 (also known by the trade name Freon was widely used in air conditioners for automobiles and trucks for over 30 years. While new vehicles no longer use CFC-12, most vehicles built before 1994 still require its use for servicing. In 1994, EPA established the Significant New Alternatives Policy (SNAP) Program to review alternatives to ozone-depleting substances like CFC-12. Under the authority of the Clean Air Act (CAA), EPA examines new substitutes for their ozone-depleting, global warming, flammability, and toxicity characteristics. EPA has determined that several refrigerants are acceptable for use as CFC-12 replacements in motor vehicle air conditioning systems, subject to certain use conditions. For more details regarding the use conditions, more specifics about refrigerant alternatives, or updates, please contact EPA's hotline at 800.296.1996 or their website at http://www.epa.gov/title6/snap/macssubs.html.

A few details regarding the "Approved Refrigerant Chart" found on the back of this factsheet:

"acceptable subject to use conditions" is cited when EPA believes such refrigerants, when used in accordance with the conditions, are safer for human health and the environment than CFC-12. This designation does not mean that the refrigerant will work in any specific system, nor does it mean that the refrigerant is perfectly safe regardless of how it is used. Finally, note that neither EPA or the Montgomery County Department of Environmental Protection approves or endorses any one refrigerant that is acceptable subject to use conditions over others also in that category. Also, note that EPA does not test refrigerants.

Use Conditions:
Under the SNAP Rule, each new refrigerant must be used in accordance with the conditions listed below.

- Unique Fittings: Each new refrigerant must be used with a unique set of fittings to prevent the accidental mixing of different refrigerants. These fittings are attachment points on the car itself, on all recovery and recycling equipment, on can taps and other charging equipment, and on all refrigerant containers.
- Labels: Whether a car is originally designed to use a new refrigerant or is retrofitted, the technician must apply a detailed label giving specific information about the alternative. The label's background color is chosen by the manufacturer to be unique.
- Remove Original Refrigerant: The original CFC-12 must be removed from the system prior to charging with the new refrigerant. This procedure will prevent the contamination of one refrigerant with another. Refrigerants mixed within a system probably won't work and could damage the system. This requirement means that no alternative can be used as a "drop-in"
- Barrier Hoses: HCFC-22, a component in some blends, can seep out through traditional hoses.
- Compressor Shutoff Switch: Some systems have a device that automatically releases refrigerant to the atmosphere to prevent extremely high pressures. When retrofitting any system with such a device to use a new refrigerant, the technician must also install a high-pressure shutoff switch.

| Name[1] | Status[2] | Date | Manufacturer | Components/Reason Unacceptable | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | HFC-22 | HCFC-124 | HCFC-124b | HCFC-134a | Butane (R-600)[3] | Isobutane (R-600a)[3] | HFC-227ea |
| HFC-134a | ASU | 3/18/94 | Several | | | | 100 | | | |
| FRIGC FR-12 | ASU | 6/13/95 | Intermagnetics General 800.555.1442 | | 39 | | 59 | 2 | | |
| Free Zone/RB-276[4] | ASU | 5/22/96 | Refrigerant Management Services of Georgia 800.347.5872 | | | 19 | 79 | | | |
| R-406A/ GHG[5] | ASU | 10/16/96 | People's Welding 800.382.9006 | 55 | | 41 | | | 4 | |
| GHG-X4/ Autofrost / Chill-It[5] | ASU | 10/16/96 | People's Welding 800.382.9006 | 51 | 28.5 | 16.5 | | | 4 | |
| Hot Shot/Kar Kool[5] | ASU | 10/16/96 | ICOR 800.357.4062 | 50 | 39 | 9.5 | | | 1.5 | |
| Freeze 12 | ASU | 10/16/96 | Technical Chemical 800.527.0885 | | | 20 | 80 | | | |
| GHG-X5[5] | ASU | 6/3/97 | People's Welding 800.382.9006 | 41 | | 15 | | | 4 | 40 |
| GHG-HP[5] | ASU | 10/16/96 | People's Welding 800.382.9006 | 65 | | 31 | | | 4 | |
| Ikon-12 | ASU | 5/22/96 | Ikon Corp. 601.868.0755 | Composition claimed as confidential business information | | | | | | |
| OZ-12 | UNA | 3/18/94 | OZ Technology | Flammable blend of hydrocarbons; insufficient data to demonstrate safety | | | | | | |
| R-176 | UNA | 3/18/94 | Arctic Chill | Contains CFC-12, which is inappropriate in a CFC-12 substitute | | | | | | |
| HC-12a | UNA | 6/13/95 | OZ Technology | Flammable blend of hydrocarbons; insufficient data to demonstrate safety | | | | | | |
| Duracool 12a | UNA | 6/13/95 | Duracool Limited | This blend is identical to HC-12a in composition but is manufactured by a different company | | | | | | |
| R-405A | UNA | 6/13/95 | Greencool | Contains a perfluorocarbon, which has extremely high global warming potential | | | | | | |

Notes:
1 R-401A(made by DuPont), R-401B (DuPont), R-409A (Elf Atochem), Care30 (Calor Gas), Adak-29/Adak-12 (TACIP Int'l), MT-31 (Millenia Tech), and ES-12R (Intervest) have not been submitted for review and therefore it is illegal to use these refrigerants in such systems.
2 Contact EPA for details on legality of use according to status
ASU=acceptable subject to fittings, labeling, no drop-in, and compressor shutoff switch ("Use Conditions"
UNA=unacceptable; illegal for use as a CFC-12 substitute
3 Although some blends contain hydrocarbons, all blends that are ASU are nonflammable as blended
4 Freezone contains 2 percent of a lubricant
5 HCFC-22 content results in an additional use condition: must be used with barrier hoses